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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,436	11/16/2006	Peter Geskes	016906-0507	3424
22428 7590 05/23/2011 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER FLANIGAN, ALLEN J	
			ART UNIT 3744	PAPER NUMBER
			MAIL DATE 05/23/2011	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/577,436

Applicant(s)

GESKES ET AL.

Examiner

ALLEN FLANIGAN

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13, 15-20, 22-38, 40-44, and 47 is/are pending in the application.
- 4a) Of the above claim(s) 4-8, 16-18, 20, 22-25, 28-31, 33-35, 38 and 47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9-11, 13, 15, 19, 23, 24, 29, 30, 32, 36, 37, 40-44 and 48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-552)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Claims 4-8, 16-18, 20, 22, 25-28, 31, 33-35, 38, and 47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/11/2010.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 19, 23, 29, 30, 32, 40, 43, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Pantow et al.

Please see the comments made in regard to the above rejection in the previous Office action. The amendments made to claim 1 fail to distinguish over Pantow et al. (see discussion which follows).

Claims 9-11, 13, 15, 24, and 45 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Pantow et al.

Please see the comments made in regard to the above rejection in the previous Office action.

Claims 36, 37, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pantow et al.

Please see the comments made in regard to the above rejection in the previous Office action.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sacca et al. in view of Pantow et al.

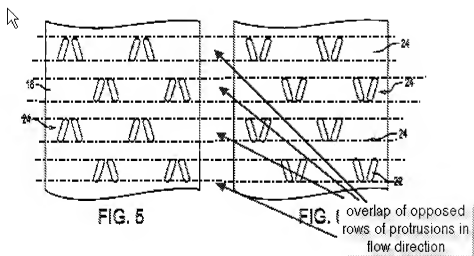
Although Pantow et al. teach the provision of overlapping rows of pairs of angled protrusions on opposite walls of individually formed flat tubes, Sacca et al. show a heat exchanger with flat passages formed by stacking plates or disks on top of one another. The plates are formed with protrusions that have the same purpose as those provided in Pantow et al., i.e. to generate turbulence in the fluid within the tubular passages to enhance heat transfer. Thus, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to substitute the rows of paired, oppositely angled protrusions that form a V-shape disclosed in Pantow et al. for the rows of uniformly angled protrusions employed in Sacca et al.

Applicant's arguments filed 3/7/2011 have been fully considered but they are not persuasive or are moot in view of the new grounds of rejection.

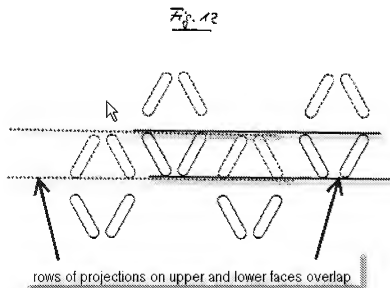
Initially, the applicant incorrectly asserts that the Office has provided "no evidence" in support of taking Official Notice that the use of welding or soldering to assemble flat heat exchanger tubes (or heat exchanger tubes in general) is notoriously well known in the art. At least two references that have

been made of record (Bossart et al. and Bae et al.) disclose clearly the use of soldering, brazing, or welding to fabricate flat heat exchanger tubes (top right hand column of page 2 of Bossart, second full paragraph; bottom of column 7 of Bae et al.).

As noted above, the language added to claim 1 fails to distinguish over Pantow et al. Contrary to applicants' contentions regarding Fig. 12 of Pantow et al., it is apparent that this enlarged figure is only meant to show a representative sample of the total number of protrusions formed on the opposed walls 18, 20 of the flat tubes. The fact that the upper and lower rows do not appear to have corresponding rows of protrusions from the opposite face in overlapping relation appears to be merely due to a drafting omission of some of the protrusions for clarity. Note also the example shown in the Figs. 5 and 6 embodiment, said to show "illustrations as in Figs. 2 and 3 of a further embodiment". Figs. 2 and 3 respectively show the opposed first and second flat faces 18 and 20 that face each other and have protrusions formed therein. They are shown in an unfolded or "exploded" view, distinct from the profile or "see through" view shown in Fig. 7, for example. Since Figs. 5 and 6 are intended to provide a similar unfolded view of the opposed tube walls, the protrusions 24 provided on the opposed walls 18, 20 would clearly overlap in the flow direction within the tube:



If the Figs. 5 and 6 embodiment were shown in a profile or “see through” view similar to Fig. 12, the overlapping rows of protrusions would obviously appear to be identical to the central row shown in Fig. 12:



Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLEN FLANIGAN whose telephone number is (571)272-4910. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen J. Flanigan/  
Primary Examiner, Art Unit 3744